

WHAT IS CLAIMED IS:

1. A process for the purification of toluene diisocyanate from a crude distillation feed comprising less than 2% by weight of phosgene
5 comprising
 - a) fractionating the crude distillation feed comprising less than 2% by weight of phosgene to remove solvent and, optionally, reaction residue to produce a crude toluene diisocyanate feed comprising less than 20% by weight of solvent and
 - 10 b) separating the crude toluene diisocyanate feed comprising less than 20% by weight of solvent in a divided-wall distillation column into four product fractions P1 – P4 comprising:
P1, a vapor phase low-boiler and solvent-enriched gas stream,
P2, a low-boiler and solvent-enriched product,
15 P3, a high-boiler-enriched bottoms product comprising toluene diisocyanate and
P4, a toluene diisocyanate product stream lean in low-boiler, high-boiler and reaction residue.
- 20 2. The process of Claim 1 in which the product fraction P1 comprises 20-99% by weight of solvent, low-boiler and toluene diisocyanate.
3. The process of Claim 1 in which the product fraction P2 comprises solvent, low boiler and toluene diisocyanate.
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4. The process of Claim 1 in which the product fraction P3 comprises toluene diisocyanate and 0.5-15% by weight of a high boiler.
5. The process of Claim 1 in which the product fraction P4 has a toluene
30 concentration of at least 99.5% by weight and comprises less than 200 ppm by

weight of solvent and/or chlorinated aromatic hydrocarbon, less than 100 ppm by weight hydrolyzable chlorine and less than 40 ppm by weight acidity.

6. A process for the production of toluene diisocyanate comprising:
- 5 a) reacting toluene diamine with phosgene to produce a crude distillation feed,
- b) separating unreacted phosgene from the crude distillation feed if the crude distillation feed comprises 2 % by weight or more of phosgene to obtain a crude distillation feed comprising less than
- 10 2% by weight of phosgene,
- c) fractionating the crude distillation feed comprising less than 2% by weight of phosgene to remove the solvent and optionally the reaction residue to produce a crude toluene diisocyanate feed comprising less than 20% by weight of solvent and
- 15 d) separating the crude toluene diisocyanate feed comprising less than 20% by weight of solvent in a divided-wall distillation column into four product fractions P1 – P4 comprising:
- P1, a vapor phase low-boiler and solvent-enriched gas stream,
- P2, a low-boiler and solvent-enriched product,
- 20 P3, a high boiler enriched bottoms product comprising toluene diisocyanate and
- P4, a toluene diisocyanate product stream lean in low-boiler, high-boiler and reaction residue.
- 25 7. The process of Claim 6 in which the product fraction P1 comprises 20 – 99% by weight of solvent, low-boiler and toluene diisocyanate.

8. The process of Claim 6 in which the product fraction P2 comprises solvent, low boiler and toluene diisocyanate.
- 5 9. The process of Claim 6 in which the product fraction P3 comprises toluene diisocyanate and 0.5-15% by weight of high-boiler.
- 10 10. The process of Claim 6 in which the product fraction P4 has a toluene diisocyanate concentration of at least 99.5% by weight and comprises less than 200 ppm by weight of solvent and / or chlorinated aromatic hydrocarbons, less than 100 ppm by weight hydrolyzable chlorine and less than 40 ppm by weight acidity.